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GENERAL NOTES.

GEOGRAPHY AND TRAVELS.[1]

CIRCUMPOLAR STATIONS.—The Swedish expedition, after two unsuccessful attempts to land at Mussel bay, Spitzbergen, reached the shore with great difficulty at Cape Thordsen, in Ice fiord, and erected magazines and an observatory there. Observations began August 15, 1882. The state of the ice during the summer was unusually bad, and no vessels could get higher than Amsterdam island.

The Finnish party at Sodankylia, in the north of Finland, also began to make observations on August 15.

The Austrian expedition was also at first unsuccessful in its attempt to reach Jan Mayen, and the *Pola* had to put back to Tromsö, but made a second attempt, and anchored in Mary bay on July 13th. Besides the buildings brought out in the ship, two others were erected from driftwood, which was found in large quantities. There was little snow upon the island, but much ice outside, so that the *Pola* was compelled to go out to sea three times to avoid it. The station is situated on the so-called isthmus, which connects the northern and southern parts of the island, forming a valley through which flows a glacier stream. Its approximate position is in 71° N. lat., 3° 26′ E. long. The valley has been named after Count Wilczek. Regular observations were commenced on Aug. 7th. Fogs and rain prevailed from the beginning of July to the middle of August, and the thermometer seldom rose above 3° Celsius, and occasionally fell below freezing-point. An attempt was made to ascend the remarkable volcanic peak of Beerenberg, but after nine hours hard toil the party were compelled to give it up, having attained an altitude of only 5000 feet. Hot sulphurous steam issued from fissures, and extensive layers of lava were found. The *Pola* left Jan Mayen August 16th.

The party at the U. S. station at Point Barrow passed the winter of 1881-82 comfortably, and the observations were taken regularly.

The *Neptune* failed to reach the Greeley Scientific Expedition stationed in Lady Franklin bay, 31° N. lat., and has returned to St. John's, Newfoundland.

An impenetrable barrier of ice prevented her from reaching a higher latitude than 79° 20′, but she landed supplies at several ports, including Pandora harbor, where a record left by Sir Allen Young was discovered close to the water's edge, to which spot it had been washed down from a cairn above. Upon Brevoort island a record of Sir Geo. Nares was found. Upon one occasion the *Neptune* narrowly escaped crushing, and was saved only by the softer ice around the ship. From the precautions that have been taken in the concealment of the provisions, it is thought that there is no danger of the U. S. observing party being in straits for want of food.

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[1] This department is edited by ELLIS H. YARNALL, Philadelphia.

The Polar Committee of the Berlin Geographical Society have sent Dr. Koch to establish meteorological observations among the missions of the Moravians in Labrador, along the coast of which the line of minimum of depression passes. He arrived August 10.

When the *Germania* left Kingawa, in Cumberland sound, on September 6th, the observatory was completed, and observations had been commenced. A meteorological station has also been established in the Falkland islands, as an intermediary between the stations on the South American continent and that on South Georgia. Capt. Seeman reports that work has begun.

The meteorological expedition to the mouth of the Lena (Russian) has started on board large boats provided with all necessaries for building and wintering.

The Norwegian station at Bornekop, on the Alten fiord, commenced operations on August 1st.

DANISH ARCTIC EXPEDITION.—The *Djimpha*, with the Danish expedition under Lieut. Hovgaard, left Tromsö on the 2d of August. Lieut. Hovgaard's theory is that two large continents or groups of islands extend from Franz Josef land across the North Pole, in the direction of Wrangell island, and that they are separated by one or more straits which connect the Siberian and Palæocrystic seas, the principal opening being probably between Cape Chelyuskin and the New Siberian islands. The principal objects of the expedition are, to decide whether Franz Josef land really extends to the neighborhood of Cape Chelyuskin, whether the conditions of currents and ice are such that a base for further exploration can be reached without incurring too great a risk, and finally, whether the coast of Franz Josef land trend northward at that point to form the western side of this supposed great opening.

The *Djimpha* is 150 tons burden. The company includes a lieutenant and zoölogist, and numbers eight officers and fifteen men. Lieut. Hovgaard preferred to winter near Cape Chelyuskin or on the south coast of Franz Joseph Land. Observations were to be taken throughout the winter, in accordance with the programme of the International Expeditions.

The *Varna* and *Djimpha* were ice-bound eighty miles to the east of Waigatz island before September 21st, and this, together with the experience of the *Neptune*, appears to indicate an unusually severe arctic winter.

ARCTIC ITEMS.—The Italian antarctic expedition, under command of Lieut. Bove, who, with his staff, has now arrived at Genoa, was engaged in scientific observations in the Straits of Magellan, during the early part of last summer, but unfortunately their vessel was wrecked before very much had been accomplished.——The land on the shores of the Gulf of Bothnia is gradually rising. One point, which in 1755 was only two inches above the level of the sea, is now six feet five inches.——Two Swedish geologists have undertaken a thorough geological examination of Bjornö and the southern part of Spitzbergen. Zoölogical and botanical observations have also been made.——The Swedish Geological Expedition returned to Tromsö on Sept. 16th. It was found impossible to land on Beeren island, as was intended, owing to tremendous seas. Snow had covered Spitzbergen as early as August 30th, and forced them to discontinue their researches. Observations were commenced at Smith's observatory, by the Swedish Meteorological Expedition, on August 15th.——Owing to the enormous quantities of drift-ice in the Kara sea, the *A. E. Nordenskiöld*, bound for the Jenisei, has put back to Vardö, after narrowly escaping being frozen in near Waigatz island.——An expedition under Lieut. Andreyew, sent out by the Russian Geographical Society, has reached Novaya Zembla, where it will winter.

SCIENTIFIC RESULTS OF THE JEANNETTE EXPEDITION.—A history of the Jeannette expedition is in preparation, under the care of Mr. Raymond L. Newcomb.

The extensive collections of birds and deep-sea fauna were lost with the ship, but the observations of the aurora and magnetism, about 2000 measurements, were preserved. The depth of the ocean north of Wrangell island, where the Jeannette spent the first winter, was every where very small—thirty fathoms on an average, with a maximum of sixty and a minimum of seventeen fathoms. The bottom was usually a blue ooze, with a few shells, and sometimes with stones which seemed to be of meteoric origin.

On May 17, 1881, the small island called Jeannette, was reached in 76° 47′ 28″ N. lat., and 157° 20′ 45″ E. long. It consisted of a rocky hill, covered with snow, flanking the eastern side of a high mountain. Two days later, another island was discovered towards the west, and was named Henrietta. Mr. Melville landed on it on June 3d, 1881. It is 77° 8′ N. lat., and 157° 43′ E. long. It is rocky, and 2500 to 3000 feet high. The rocks are covered with nests of birds. Only one phanerogamous plant was found; all remaining vegetation consisted of lichens and mosses. A large glacier reaches the sea on the south coast, and the surface of the land is covered with ice and snow, fifty to a hundred feet in thickness. The highest latitude reached was 77° 42″ ten days after the abandonment of the *Jeannette*, in consequence of the drift of the ice upon which the escaping crew were journeying. Bennett island was discovered July 9th, during the retreat of the party to the Siberian coast. It is in 76° 38′ N. lat. and 148° 20′ E. long., and is a high mass of basalt covered with glaciers. On the north coast are several valleys covered with grass, where reindeer bones and driftwood were found. Lignite, amethysts and opals were obtained, and fossils collected, but afterwards lost. The tides were regular, but very small—about two or three feet. The sea was free of ice to the west and south, and in the northwest a water-way was seen. The fauna and flora of the New Siberian islands, which were never before explored in the summer, promises interesting results. The observations made by the search expeditions may also be expected to furnish important corrections of the maps of the Siberian coast between the Olenek and Yana rivers.

GEOGRAPHICAL NOTES.—The well-known French explorer of South America, Dr. Jules Crevaux, who was recently killed by Indians in the Gran Chico, had just begun the exploration of the Pilcomayo, that great tributary of the Paraguay, which, it is hoped, will afford an important means of communication between Bolivia and La Plata.——Mr. Colquhoun, of whose proposed journey from Canton to the Irawadi mention has previously been made, reached Bhamo, by way of Western Yunnan, but was unable to carry out his original plan of crossing the southern part of Yunnan and the Shau States to Rangoon. He has, however, explored a long and heretofore unknown route in Southern China.——The highest mountain in the Philippines, a volcano called Api, has been recently ascended by two German naturalists, and ascertained to be 10,824 feet above the sea-level. ——From operations with the spirit-level, in connection with the Indian tidal observations, it has been deduced that the ocean level at Madras is three feet higher than at Bombay, an anomaly which has been found to be caused by an accumulation of minute errors due to the fact that, when the general direction of the lines of levels is towards the sun, or opposite to it, the observer gets a side view of the bubble refracted obliquely through the thickness of the glass tube, and is thus inclined to regard the outer edge of the rim of the bubble at the end nearer the light, and the inner edge of the rim at the other end, as the bubble itself. Thus the instrument is assumed to be level, when in reality the end towards the light is depressed. This error, when measured and multiplied by the number of stations at which it would occur between Madras and Bombay, gave about three feet.——The changes of level of the rivers of Russia, in Europe, have been accurately measured. The highest range is reached by the Oka, at Kalaga, and is 45 feet, while the average range along the entire length of the same river is 32.2 feet; the average for the Volga, from its source to its mouth, is 33.6 feet; for the Kama, 30.1 feet; for the Duna, 25.2 feet, and for the Don, 23.1 feet. Even at Astrakhan the Volga has a range of 12 feet, and the Duna one of 9 feet at Riga.——In 1880, M. de Saussure suggested the probability that the level of Lake Leman is now lower than formerly, and recent investigations of the superficial drift have led to the conclusion that in former times, during the present era, the lake must have been at least three meters higher than its present level.——M. Lessar has returned from Saraks, whither he journeyed through the flat country called the Altek, inhabited chiefly by Tekke Turcomans, except two villages occupied by Persian Shiites. Most of the natives live in clay houses, and subsist by agriculture.——Dr. Otto Finsch has returned to Berlin, after two and a half years in Polynesia and Australia. He has visited the Sandwich, Marshall, and Caroline islands, also New Britain, New Zealand, Australia and Tasmania, as well as the islands in Torres straits and the south coast of New Guinea, where he stayed six months, and instituted comparisons between the Papuans and Eastern Melavesians. He brings a rich collection, and is accompanied by a native of New Britain, aged 15.

GEOLOGY AND PALÆONTOLOGY.

THE SEDIMENTS OF THE GULF STREAM SLOPE.—Professor Verrill states that the bottom of this slope, in from 70 to 300 fathoms, 60 to 120 miles from land, is mainly formed of very fine quartz sand, intermixed with feldspar, mica, magnetite, etc., and with a considerable percentage of foraminiferous shells. Spherical, rod-like and stellate sand-covered rhizopods also often occur in large quantities. The sand is often so fine as to resemble mud, and in the deeper localities true clayey mud may be met with, yet as a whole the region is characterized by the prevalence of fine sand, and the absence of mud, a circumstance which appears to indicate the presence of a current sufficient to prevent the deposition of mud along the upper portion of the slope.

Throughout the belt, even to over 700 fathoms, occur numerous pebbles and small rounded boulders of granite, syenite, mica-schist, etc., that have probably been dropped from shore ice that has floated out into the Gulf stream.

At several localities concretions of a peculiar calcareous rock, varying in size from a few inches in diameter up to twenty-nine inches long, fourteen wide and six thick, were dredged up. Professor Verrill believes these to be of deep-sea origin. They differ much in color and fineness of grain, but are all composed of siliceous sand cemented together by lime in greater or less abundance.

No rocks of this kind are found on the coast, and it is scarcely possible that marine currents sufficiently powerful to erode them exist at these depths, but Professor Verrill thinks it possible that their detachment may be due to the habits of certain fishes and crustacea. The hakes (Phycis) root in the mud like pigs for annelids and other mud-dwelling invertebrates; the Macruri burrow into the bottom tail first; the eels are all burrowers, and so are many crabs. The action of these creatures would enable the currents to wash away the finer materials, and leave the coarser.